

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARTINUS A. M. GIJS, and PAUL J. KELLY

Appeal No. 1998-0880
Application No. 08/649,909

ON BRIEF

Before KRASS, FLEMING, and HECKER, Administrative Patent Judges.

HECKER, Administrative Patent Judge.

DECISION ON APPEAL

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Application No. 08/649,909

This is a decision on appeal from the final rejection of claims 2 through 4, 8, 12 through 14, 16¹ and 18, all claims pending in this application.

The invention relates to a magneto-resistance (MR) device having two layers of half-metallic ferromagnetic material, separated by an electrically insulating layer of non-ferromagnetic material.

Independent claim 16 is reproduced as follows:

16. A magneto-resistive device comprising two layers of ferromagnetic material mutually separated essentially only by at least one layer of a non-ferromagnetic material, characterized in that said at least one layer of non-ferromagnetic material is electrically insulating and is in contact with one of said layers of ferromagnetic material and at least one of the layers of ferromagnetic material comprises a half-metallic material.

The references relied on by the Examiner are as follows:

Kamiguchi et al.	5,416,353	May 16, 1995 (filed Sep. 10, 1993)
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Nakatani et al., "Changes in the electrical resistivity of Fe-C/Al₂O₃/Fe-Ru multilayered films due to a magnetic field", Journal of Materials Science Letters, Vol. 10, 1991, pp. 827-828.

¹ We note that claim 16 submitted in the appendix to the brief is incorrect. The words "essentially only", added by amendment c, are not recited.

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Claims 2 through 4, 8, 12 through 14, 16 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakatani in view of Kamiguchi.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the brief and the answer for the details thereof.

OPINION

After a careful review of the evidence before us, we will not sustain the rejection of claims 2 through 4, 8, 12 through 14, 16 and 18 under 35 U.S.C. § 103.

The Examiner has failed to set forth a ***prima facie*** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the reasonable teachings or suggestions found in the prior art, or by a reasonable inference to the artisan contained in such teachings or suggestions. ***In re Sernaker***, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally

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recognizable 'heart' of the invention." ***Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.***, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (***citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.***, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), ***cert. denied***, 469 U.S. 851 (1984)).

The Examiner reasons that Nakatani discloses the multilayered MR device but does not show the ferromagnetic layers being made out of half metals. The Examiner notes that Kamiguchi shows a MR device that includes two layers of half metallic ferromagnetic material separated by at least one layer of a non-magnetic, electrically insulating material (answer-pages 3 and 4), and concludes:

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the ferromagnetic layers of the Nakatani and Kitada article with the half metallic ferromagnetic layers as taught by Kamiguchi et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to use a half metallic ferromagnetic layer because half metallic materials exhibit excellent magnetic properties that amplify the magnetoresistive effect, thereby increasing the sensitivity of the MR device.
[Answer-page 4.]

Looking at Kamiguchi, we see nothing that suggests half metallic materials exhibit properties that amplify the MR

effect. At most, the cited passage of Kamiguchi (column 4, lines 54-59) indicates ferromagnetic metals and half metals are interchangeable. Thus, we see no evidence of half metals amplifying the MR effect, and thus no basis for the Examiner's expressed motivation.

Appellants argue that since the semiconductor layer in Kamiguchi is an essential feature of the Kamiguchi device, and since the combination of Kamiguchi and Nakatani would not have the semiconductor layer, one would not be motivated to make the combination. (Brief-pages 5 and 6.)

We agree with Appellants, there is a lack of motivation to make the combination put forward by the Examiner.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." ***In re Fritch***, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), ***citing In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings

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or suggestions of the inventor." ***Para-Ordnance Mfg. v. SGS Importers Int'l***, 73 F.3d at 1087, 37 USPQ2d at 1239, ***citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.***, 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13.

Accordingly, we will not sustain the Examiner's 35 U.S.C. § 103 rejection of claims 2 through 4, 8, 12 through 14, 16 and 18.

REVERSED

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Administrative Patent Judge)	
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